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Figure 1. Associations between baseline predictors and response to MTX according to different outcome criteria and at different time points, in odds ratios with 95% confidence interval.

Odds ratios are shown as diamonds: White diamonds represent univariate analyses; black diamonds multivariate analyses; and whiskers 95% confidence intervals. Used response criteria and time points of clinical response are shown in grey type for each study. DAS28: disease activity score assessing 28 joints; DAS44: disease activity score assessing 44 joints; LDA: low disease activity (definition not specified in article); M: months; W: weeks.

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AB0277 EFFECT OF DISEASE DURATION AND OTHER PATIENT BASELINE CHARACTERISTICS ON OUTCOMES IN TOCILIZUMAB-TREATED RHEUMATOID ARTHRITIS PATIENTS: A POOLED ANALYSIS

Andrea Rubbert-Roth¹, Daniel Aletaha², Jenny Devenport³, Paris N. Sidiropoulos³, Yves Luder⁴, Michael Edwardes⁵, Johannes W. G. Jacobs⁶. ¹Kantonsspital St Gallen, St Gallen, Switzerland; ²Medical University of Vienna, Vienna, Austria; ³Genentech, South San Francisco, United States of America; ⁴F Hoffmann-La Roche, Basel, Switzerland; ⁵Everest Clinical Research, Markham, Canada; ⁶University Medical Center, Utrecht, Netherlands

Background: Tocilizumab (TCZ) efficacy and safety in rheumatoid arthritis (RA) have been well established by numerous phase 3 and 4 studies and observational studies.

Objectives: To explore the extent to which disease duration, inflammation, disease burden, and other baseline factors explain variations in outcomes in studies of RA patients treated with TCZ.

Methods: This was a pooled analysis of methotrexate-inadequate responding (IR)/conventional synthetic disease-modifying antirheumatic drug (csDMARD)-IR patients with RA allocated to TCZ (intravenous or

subcutaneous, monotherapy + combination therapy) in phase 3 and 4 studies. End points were change from baseline to week 24 in Clinical Disease Activity Index (CDAI) and quality of life (Health Assessment Questionnaire-Disability Index [HAQ-DI]) and week 24 ACR50 and CDAI remission (≤2.8). Using a combination of clinically informed and mathematically driven variable selection techniques, models (with study included as a random effect to account for intracorrelation of observations within each study) were built to optimize fit and explain outcome variance. Analysis of covariance and logistic regression were used for CDAI/HAQ-DI change from baseline and for ACR50/CDAI remission, respectively.

Results: The analyses were performed on 5462 patients from 12 studies. Analysis of baseline characteristics (before TCZ administration) revealed that patients with longer disease duration had been exposed to more csDMARDs and had worse HAQ-DI than patients with shorter disease duration. Statistical modeling of clinical outcomes showed that disease duration accounted for <2% of the variation in HAQ-DI and CDAI change from baseline. Baseline CDAI explained 32% of the variation in CDAI change from baseline. Patients with higher baseline CDAI values tended to have greater improvements, likely due to having more "room" for improvement and to a higher risk for regression to the mean resulting from the fact that inclusion criteria for most trials required defined thresholds of disease activity, including joint counts. Baseline HAQ-DI, neither an inclusion criterion itself nor influenced by other inclusion criteria, explained 15% of the variation in HAQ-DI change from baseline. The odds of achieving ACR50 decreased by 9.2% if disease duration was doubled. The odds of achieving CDAI remission decreased by 15% per 5 additional years of disease duration and decreased by 22% per 10 additional score units of CDAI at baseline.

Conclusion: In this pooled analysis of TCZ-treated RA patients, disease duration explained statistically significant but practically small variations in clinical outcomes. These findings indicate that TCZ treatment outcomes are not heavily influenced by disease duration or other baseline characteristics.

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AB0278 DISCRIMINANT VALIDITY OF THE HANDGRIP STRENGTH TEST IN PATIENTS WITH RHEUMATOID ARTHRITIS: A COHORT STUDY

Fausto Salaffi¹, Sonia Farah¹, Marco Di Carlo¹, Giacomo Beci¹, Marina Carotti². ¹Hospital "Carlo Urbani", Dipartimento scienze cliniche e molecolari, Jesi, Italy; ²Ospedali Riuniti Torrette Di Ancona, Dipartimento Radiologia, Torrette, Ancona, Italy

Background: Hand involvement is one of the major determinants of disease outcome affecting the ability to perform activities of daily living and other functional activities in rheumatoid arthritis (RA). Handgrip strength (HS) provides a clinically validated marker of functional disability.

Objectives: The aim of this study was to assess discriminant validity of HS and to compare it with the Quick Disabilities of Arm Shoulder and Hand (Quick-DASH) (1), Arthritis Impact Measurement Scales 2 (AIMS-2), Hand Health Assessment Questionnaire (Hand HAQ) and Recent-Onset Arthritis Disability (ROAD) upper extremity index (2).

Methods: In this transversal study, a total of 291 patients with RA responding to the ACR 2010 criteria were evaluated. HS was measured twice for both hands by the use of an electronic grip device. The instrument consists of a cylindrical-shape grip device made of 5 force sensors connected to a microcontroller. The correlations between indices were studied through the Pearson's correlation coefficient (r). The discriminatory ability of HS [cut-off values, male ≤ 27Kg, female ≤ 16Kg], QuickDASH [range 0-100], AIMS-2 hand/finger function [range 0-10], Hand HAQ [range 0-21], and ROAD upper extremity function [range 0-10] were assessed using receiver operating characteristic (ROC) curves analysis. The external anchor was the general question on Patient Acceptable Symptom State (PASS) (3).

Results: The 239 female and 52 male patients (sex ratio: 4.5F/1M) were of a mean age of 56.5 ± 12.3 years (20-81) and a disease duration of

8.5±3.3 years (2 months–22 years). The HS mean (Kg) was 20.9±7.1 [95%CI 20.07–21.7]. The Quick-DASH mean was 28.08±11.90 [95%CI 26.7–29.45]. The AIMS-2 hand and finger mean score was 4.5±2.21 [95%CI 4.24–4.75]. The Hand HAQ mean score was 9.8±4.3 [95%CI 9.3–10.31] and the ROAD-upper extremity mean score was 4.75±2.11 [95%CI 4.5–5]. A positive statistically significant correlation was noted between the five indices ($p<0.0001$). The area under the ROC (AUC-ROC) were similar in all the measures although the HS showed the greatest discriminative ability (Table 1 and Figure 1).

Table 1. ROC curve analysis for the discriminatory power of functional disability, according to the different measures

Variable	AUC	SE ^a	95% CI ^b
AIMS-2 hand/finger function	0,839	0,0317	0,792 to 0,879
Hand HAQ	0,846	0,0306	0,799 to 0,885
QuickDASH	0,863	0,0239	0,818 to 0,900
ROAD upper extremity function	0,816	0,0279	0,766 to 0,858
Handgrip strength (Kg)	0,900	0,0206	0,860 to 0,932

Figure 1. ROC of measures of upper extremity disease activity measures used in rheumatoid arthritis. ROC illustrating the relationship between sensitivity and complement of specificity (100-specificity) in RA for functional measures using PASS as an external indicator.

Conclusion: HS is a good alternative to the self-assessment functional indices for the evaluation of functional disability in RA. The use of an electronic grip device for HS measurement makes it easier to collect data and should be applied in both clinical trials and routine clinical care settings.

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AB0279

RENAL INVOLVEMENT AND CAUSES OF DEATH IN RHEUMATOID ARTHRITIS PATIENTS ACCORDING TO THE AUTOPSY DATA

Anastasia Tushina¹, Natalia Dostanko¹, Viktor Yagur¹, Nikolaj Soroka¹, Viktoria Dostanko². ¹Belarusian State Medical University, 2-nd Department of Internal Medicine, Minsk, Belarus; ²PMUE Informed, Minsk, Belarus

Background: Renal involvement is a clinically significant manifestation in rheumatoid arthritis (RA) patients with potential influence on the treatment, prognosis and outcome of this disease while rare publications are available on kidney damage in RA [1,2].

Objectives: To estimate the frequency and characteristics of renal involvement and causes of death in RA patients on the basis of autopsy data reports and postmortem microscopic examinations.

Methods: We have analyzed 21 814 autopsy data reports performed during 10-year period (2001-2010) and 6720 cases of autopsy performed 5 years later (2016-2018) in the Minsk City Clinical Pathoanatomic Bureau (The Republic of Belarus).

Results: For the period 2001-2010 autopsies were performed in 110 RA patients: 91 women and 19 men of 67.0 (13.1) years old, M (SD). Renal involvement was revealed in 75 patients (68.2%). The most common type of renal involvement was secondary AA amyloidosis - 44 patients (40%). Other types of revealed renal lesions (n=31, 28.2%) were mesangial proliferative glomerulonephritis (n=3; 2.7%), nephroangiosclerosis (n=14, 12.8%), tubulointerstitial nephritis (n=2, 1.8%), chronic pyelonephritis (n=10, 9.1%) and renal vessel vasculitis (n=2, 1.8%).

The main cause of death in RA patients with amyloidosis was end-stage renal disease (ESRD, 43.2%), whereas in other patients the common causes of death were cardiovascular events (43.2%) and secondary infections (33.3%). In case of secondary amyloidosis the deposits of amyloid were found in kidney of all RA patients (100%), in adrenal glands - in 36.4% and in spleen - in 34.1% of RA patients. Amyloid deposits in other internal organs were not nearly as common.

In 2016-2018 50 patients with RA have been autopsied with mean age of death 72.0 (15.2) years old. Renal involvement was revealed in 34 (68.0%) of autopsies: as secondary amyloidosis in 29 patients (58.0%) and as focal segmental glomerulosclerosis or mesangial proliferative glomerulonephritis in 5 patients (10.0%). The most common cause of death in this group of RA patients were cardiovascular events (58.0%), fatal infectious complications developed in 16.0% of patients, ESRD was revealed only in 4.0% of patients.

Conclusion: 1. We have revealed an increase in secondary amyloidosis frequency in RA patients over the studied period of time from 40% to 58% ($p=0.041$, Fisher's exact test) while ESRD as a cause of death in RA patients decreased from 17.3% to 4% ($p=0.023$, Fisher's exact test). 2. Secondary amyloidosis is the most common type of renal involvement in RA according to the autopsy data.

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AB0280

DIFFERENCE BETWEEN PATIENT'S GLOBAL HEALTH AND PATIENT'S GLOBAL ASSESSMENT OF DISEASE ACTIVITY, AND DIFFERENT FACTORS INFLUENCE ON THESE SCALES IN RHEUMATOID ARTHRITIS PATIENTS

Naohiro Sugitani^{1,2}, Yuki Mizutani¹, Kentaro Noda¹, Yasuo Suzuki¹, Ayako Nakajima¹. ¹Mie University Hospital, Center for Rheumatic diseases, Tsu city, Mie, Japan; ²Tokyo Women's Medical University, Department of Rheumatology, Tokyo, Japan

Background: Evaluation of rheumatoid arthritis (RA) activity is crucial measurement in achieving remission or low disease activity. Visual analogue scale (VAS) by patient's evaluation has been used for the outcome measure for RA patients because of its feasibility, reliability, sensitivity to change, and it directly reflects the patient's overall perspective. Patient's evaluation is a component of multiple composite indices used in assessing RA activity and treatment response. There are two measurements that patient's evaluation. One is patient's global assessment of disease activity (PtGA), and the other is patient's assessment of global health (PtGH)¹. PtGA was originally developed as a component of American College of Rheumatology Core Set and used for Simplified Disease Activity Index (SDAI) and Clinical Disease Activity Index (CDAI); while PtGH was originally developed as a component of 28-joint Disease Activity Score (DAS28). PtGA and PtGH have been considered equivalent in a